



*Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of Master of
Science in Global Sustainability Science*

**Sifting through the glamorization of the Tiny House Movement –
Perceptions among affordable housing stakeholders
in Lüneburg, Germany**

Submitted by:

Tara Lucia Freude

Leuphana matriculation number: 3029319

ASU ID: 1212106361

Tara.freude@gmail.com

Auf der Höhe 50

21339 Lüneburg, Germany

Examined by:

Prof. Dr. Deirdre Pfeiffer (Zweitprüferin, Co-Chair of the committee)

Deirdre.pfeiffer@asu.edu

School of Geographical Science & Urban Planning

Arizona State University

PO Box 855302

Tempe, AZ 85287-5302, USA

Prof. Dr. Henrik von Wehrden (Erstprüfer, Co-Chair of the committee)

Henrik.von_wehrden@leuphana.de

Leuphana University of Lüneburg

Universitätsallee 1, C11.325

21335 Lüneburg, Germany

Prof. Dr. Daniel Lang (Member of the committee)

Daniel.lang@uni.leuphana.de

Leuphana University of Lüneburg

Universitätsallee 1, C11.210f

21335 Lüneburg, Germany

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Abstract: How we divide space in ever growing urban areas in an equitable, efficient and aesthetic fashion is one of the big questions of our time. In Lüneburg, Germany, citizens think more alternative forms of housing will be an important element of a sustainable future (Lüneburg 2030, 2018). Tiny Houses, dwellings that downsize an entire household to its minimum, are currently gaining attention in the country, but legal barriers make their implementation difficult. It has to be decided if legislations should be changed to allow these structures in the housing mix of Lüneburg. It is a difficult task to sift through the glamorization of Tiny Houses past the ideological utopia to see their value for the individual (Ansons, 2015). Therefore, it is of interest to fully understand what Tiny Houses offer for affordable housing stakeholders. Twenty-five evaluations of criticism and praise of the Tiny House Movement are collected by applying Q method, a tool to gather subjective viewpoints (Barry & Proops, 1999). Results indicate, four salient perceptions on that matter. Each viewpoint identifies different opportunities and risks when evaluating Tiny Houses for Lüneburg. This research demonstrates the potential of Tiny Houses to trigger participation by bringing people with diverse backgrounds together.

Keywords:

Tiny Houses, Tiny House Movement, Affordable Housing, Q Method

1. Introduction

The Tiny House trend, which received growing attention after the financial crisis in the U.S., is currently reaching Germany. This form of housing downsizes a normal household to its minimum, and it is seen as a solution for creating housing in dense areas. The first official definition in the U.S. specifies the size: “A dwelling that is 400 square feet (37 sqm) or less in floor area excluding lofts” (ICC, 2018). Individual design and sustainability aspects vary with the interpretation of the inhabitants. Advocates have praised Tiny Houses as a solution for affordable housing (Brown, 2016), mass consumption (Kilman, 2017), and to increase wellbeing (Gentili, 2017). They often identify themselves as part of a global network (Tiny Home Builders, 2018), share experiences in social networks and blogs and advise others to follow them (The Tiny Life, 2009).

Media has romanticized Tiny Houses as a solution for various socio-economic groups and sustainability challenges, but little research has been done on outcomes (Ford & Gomez-Lanier, 2017). It is a difficult task to sift through the glamorization of Tiny Houses past the ideological utopia to see their legitimate impact on human beings (Ansons, 2015). How Tiny Houses will be implemented in Germany and whether they are a viable and desired contribution to the housing mix remains to be seen. Further, it is still unclear if the positive effect on community and environment the Movement claims to bring (Kilman, 2016) meet the needs for an inclusive housing alternative of local stakeholders.

1.1 The Tiny Houses Movement in Germany

In Germany, housing and zoning legislation has failed to stay abreast the recent Tiny House trend, causing various difficulties, including the tenuous legality of year-round residence, even on private property (Neupert, 2018). This creates unstable living conditions for the inhabitants and hinders individuals from realizing their personal housing dreams (Vervoorts, 2017).

Tiny Houses are defined as portable, fully equipped, 100-300 sq ft microhouses on a trailer frame that can be individually designed for certain lifestyles while suitable for year-round residence. Inhabitants thrive for minimalism and gain emotional benefits through do it yourself (DIY)

capabilities and reduced income dependence. They are either placed on private, joint or informal property and are often organized with similar dwellings in so called communities (Vervoorts, 2017).

Lüneburg is one exception in creating a grey area which allows the structures a legal tolerance on two sites in the city (Schäfer, 2018), while in many other German cities such communities are informal settlements. While problems arise through informal settlements, it is acknowledged by the Right to the City Movement that they are an expression of political revolt and an act of self-management and direct democracy (Harrison et. al, 2003). In this school of thought activists such as the architect Van Bo Le-Mentzel initiated a Tiny House University in an open space in Berlin. The collection of about ten Tiny Houses, skirted zoning codes by being defined as an installation by the Bauhaus Museum. They tested tiny life for one year. This experiment started discussions on how a minimum sized flat could look like, the paradigm shift that comes with basic income and crypto currencies (Bauhaus Campus, 2017).



(a) Source: <https://www.landeszeitung.de/wp-content/uploads/2016/07/Bauwagen.jpg>



(b) Source: Own photograph



(c) Source: http://bauhauscampus.org/wp-content/uploads/2017/07/170720_tinyhouses_136_web-1024x683.jpg



(d) Source: <http://tinyhouse-wanderlust.com/wp-content/uploads/2017/11/2w993qhighc0.bild.jpg>

Figure 1. Examples of Tiny House projects addressing affordable housing in Germany

(a) Manufactured homes community in Lüneburg (LZ, 2016); (b) Visitors at the Bauhaus Campus (Own photograph); (c) The 100 € flat at the Bauhaus Campus is designed to research how far living space can be reduced before it impacts quality of life (Bauhaus Campus, 2017); (d) A student who built a Tiny House in his parent's yard (Ranf, 2016)

While this project does not contribute significantly to housing supply, it exemplifies the use of Tiny Houses to mobilize people, triggering positive emotions, and publicly debating housing issues that are top down by nature and often dominated by fears, personal tragedies, and inequity. The recognition of social movements to reduce market pressures and privatization processes on the housing market is growing (Schipper, 2018). Another common implementation of Tiny Houses is placing them on private property along with a main house. Additionally, homeless assistance institutions have received a rise in inquiries if Tiny Houses could be a contribution to create

affordable housing (Neupert, 2018). Experts don't see them as substitute for social housing efforts. They claim Tiny Houses are not suitable to address the complex challenges associated with housing disadvantaged groups (Ibid., 2018). One other suspicion is that Tiny Houses could undermine minimum housing standards and tenant's rights (Ibid., 2018). Therefore, it is questionable if this type of living is suitable to the local housing market and if it really has potential in addressing inequity.

1.2 Current Housing Challenges in Lüneburg

Housing scarcity is currently observed in metropolitan areas around the world (Aalbers, 2015). In Germany these dynamics have been reported in many popular university cities (von Einem, 2016) and risk housing supply and housing quality for low-income households (Brinker & Sinning, 2014). For this reason, Lüneburg, a popular university city close to the metropolitan area of Hamburg, will serve as the research site for this study. The main groups demanding housing in the contested parts of Lüneburg are people ages 65 and older as well as families (GEWOS, 2016). Students account for 12% of Lüneburg's 77,000 inhabitants. Their housing demand focuses on the inner city, where they often share larger apartments. This creates a competition for low income families. In addition, refugees are found to be at a disadvantage in the housing market. To allow for integration of the estimated 4,400 refugees in Lüneburg and ensure a social mix, access barriers must be reduced (Ibid., 2016, p. 67). Housing in the inner city is becoming increasingly difficult for people with reduced mobility and other disabilities whose demand is primarily concentrated on these areas due to dependence on infrastructure, such as public transportation and medical care.

When being consulted about solutions for a sustainable future in the participation process of a national competition for future cities, citizens in Lüneburg demanded more information about alternatives to traditional housing (Lüneburg 2030, 2018). The housing market analysis for Lüneburg by GEWOS (2016) supports these findings as it suggests multi-story flats as one of the solutions, while simultaneously suggesting a stronger establishment of innovative forms of living, more flexible types of living, innovative space-saving construction, and the redensification of vacant lots to tackle Lüneburg's housing shortage (Ibid., 2016, p. 84-85). One vision that derived from *Lüneburg 2030* is to increase equity on the housing market by implementing alternative forms of housing (Lüneburg 2030, 2018). One consideration for alternative housing are Tiny Houses.

1.3 Research Question

The rising interest in alternative housing demands both, securing standards and flexibility in building and zoning codes. Communicative acts have long been acknowledged to have an inclusive effect on planning efforts (Healy, 1997). However, including diverse forms of information other than technical information, e.g. participant's personal sense of the situation, is a crucial element of consensus building in such processes (Innes, 1998, p. 59). An insight of the current perceptions of people affected is especially of interest for stakeholders who are confronted with a future legalization of Tiny Houses. This study aims to address this research gap by examining what Tiny Houses offer for affordable housing stakeholders in Lüneburg.

Findings display existing viewpoints among stakeholders. Additionally, results display points of agreement and disagreement between common perspectives.

Specifically, I address the following question (1) 'What are perceptions of informed stakeholders regarding Tiny Houses as a contribution to affordable housing in Lüneburg?'

2. Materials and Method

2.1 General Overview of Q Methodology

I collected viewpoints by applying Q method, a suitable tool to gather subjective viewpoints and to explore a new field of research (Barry & Proops, 1999). The Method was introduced by Stephenson (1953), a psychologist eager to measure subjectivity. Today the method is used across academic fields to study taste, values, and beliefs (Baker, 2006). It is widely used in studies that explore the nature of contested discourses and uncover attitudes impacting the environment (Addams & Proops, 2000), by displaying agreement, disagreement and controversy among diverse stakeholders (Rastogi et al., 2012; Neff, 2011; Zagata, 2009).

Strengths of Q method are that it (1) extracts an individual's perspective on a topic; (2) is suitable to question experts as well as laypersons; (3) identifies shared and diverging viewpoints amongst the subjects and therefore; (4) allows researchers to understand groups of participants (Watts & Stenner, 2012).

Individuals display their viewpoint about an issue by ranking statements that are pre-selected by the researcher (Brown, 1980). Individuals are then asked to sort statements along the subjective dimension, e.g. "most disagree/ most agree" (Watts & Stenner, 2012). Asking participants to sort the statements (Q set) relative to each other, results in a characteristic structure (Q sort) for each participant.

To assist the later interpretation of the Q sorts, this method is complemented by collecting demographic data, noting comments by the participant in an interview protocol and conducting interviews after the sorting activities (Watts & Stenner, 2012). After all Q sorts are collected, they are factor analyzed. This procedure extracts the holistic nature of viewpoints, a clear advantage over using qualitative methods e.g. semi-structured interviews for this purpose (Danielson et al. 2009).

2.2 Q Set Design and Materials

First step in conducting Q is designing a balanced set of possible opinions and perspectives on the matter (Watts & Stenner, 2012). The Q set used in this study captures positive and negative statements about affordability claims of the Tiny House Movement.

Statements derive from media and literature about Tiny Houses. I selected resources through performing web searches on Google and YouTube with the keywords (1) Tiny House Movement; and (2) Tiny House Affordable Housing. I extracted Videos, documents, newspaper and journal articles. Coding up to code saturation, (i.e. no new arguments were found in the data) led to 341 relevant items in 26 relevant resources (Appendix A). I followed instructions to develop a structured Q set that covers the relevant ground (Ibid., 2012). Thus, I generated ten reoccurring key themes in an iterative process. Finally, I assigned three to seven items to each key theme (Appendix B), using the original wording or rephrasing in a more general fashion (Ibid., 2012).

This process resulted in a balanced set of 47 positive, negative and neutral statements about the affordability claim of the Tiny House Movement (see Table 4: Research Statement). Additional interview material of this study is attached in the Appendix C-F (Pre-questionnaire, written instructions, semi-structured interview guide, and interview protocol). In addition, I taped the interview and took photographs of the Q sort. A dry-run with an affordable housing expert with knowledge of Tiny Houses was conducted to ensure a comprehensible, balanced and complete Q set. The 47 statements are printed on 2.7 x 4 inch laminated cards.

For the range and slope of the Q sort, an 11-point distribution (-5 to +5) was chosen (see Figure 2), as recommended by Brown (1980) for Q sets of 40 items and more. The diagram on which the statements are placed has a wide rather than steep form, suitable for participants who are likely to be familiar with the topic (Watts & Stenner, 2012).

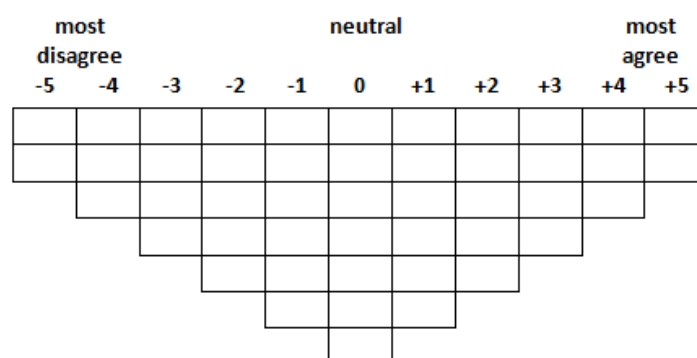


Figure 2. Range and slope of the Q sort. Own illustration adapted from Watts & Stenner (2012, p. 81)

2.3 Participants

The next step in conducting a Q survey is contacting participants with crucial viewpoints on the issue of interest (Ibid., 2012). I included 25 affordable housing stakeholders with diverse perspectives on Tiny Houses for the context of Lüneburg. Therefore, inclusion criteria were threefold; participant had to (1) be located in Lüneburg, (2) be engaged in affordable housing, and (3) know about Tiny Houses. The depths, duration, and areas of life participants engage with the three criteria aimed to be as diverse as possible. I further include strategic agents (politicians, investors), operating agents (planners, experts, researchers) as well as participating stakeholders (public, citizens, small businesses, small governmental agencies, NPOs) (Cohen & Wiek, 2017, p. 13). Subjects were identified using snowball sampling method and contacted via email. According to Stephenson (1953), the Q sort statement to participant ratio should be below two. As this study used 47 statements, a need for inclusion of at least 24 participants was identified and fulfilled by including 25 participants.

It is important to note, that this method does not quantify the collected viewpoints. Consequently, the sample does not have to be representative (Brown, 1980). The aim for diversity resulted in participants' age ranging from 21 to 71 and their occupation ranging from, but not limited to, Musician, Gardener, Academia, Architect, Refugee, Student, Politician, Social/Housing/Public/Health Services, Investor, Unemployed, Urban Planner and Social Entrepreneur. Unfortunately, only 24% women were identified through the snowball sampling. Participant's housing situation was not collected. However, four out of the 25 subjects involved in the study stated they live in a similar dwelling to a Tiny House. One participant was formerly homeless.

Table 2 gives an overview of the results of the pre-questionnaire. Demographics, inclusion criteria and if participants generally oppose or favor seeing Tiny Houses in Lüneburg was assessed.

Table 2. Background of participants.

		Participants	
		N= 25	in %
Age	<30 years	10	40
	30-50 years	11	44
	>50 years	4	16
Gender	Female	6	24
	Male	19	76
Occupation	Strategic Agents	2	8
	Operating Agents	11	44
	Participating Stakeholders	12	48
Affordable Housing Background Multiple entry possible	Private demand	21	84
	Job	9	36
	Investment	3	12
	Academia	2	8
	Demand of family/ friends	3	12
	Activism	8	32
	Other: founder of a Tiny House community, app developer, formerly homeless	3	12
Tiny House Background Multiple entry possible	Media Consumption (Newspaper, YouTube, Blogs)	17	68
	Public debate	7	28
	Advocate	9	36
	Knows someone living in a Tiny House	10	40
	Lived in/ owned/ used a Tiny House	3	12
	Other: investment, academia, founder of a Tiny House community, founder of Tiny House initiative, currently building one (2) living in similar dwelling (5), job (2)	12	48
Tiny House in Lüneburg	In favor	16	64
	Opposed	1	4
	Not sure	8	32

2.4 Procedure

I collected the data from April 9, 2018 to May 24, 2018 at a location of the participant's choice. After obtaining consent and informing the subject about the background of the study, I defined key terms and underlined the focus on the local context Lüneburg and their personal perspective. After a pre-questionnaire, participants received a written instruction guide for the sorting exercise.

During the Q sort, I noted observations on the participants' behavior in an interview protocol and minimized interaction with them to avoid influencing their responses. When the participants successfully ranked all statement cards within the given distribution, a post-interview was conducted and recorded. The transcript of the interviews and the interview protocol captured participant's reasoning for the later interpretation of the Q sorts. After the interview, a photo of the Q sort was taken.



Figure 3. Q sort: Participants model their viewpoint by rank-ordering statements in a forced distribution

2.5. Statistical Analysis and Interpretation

The 25 collected Q sorts were factor analyzed using Principal Component Analysis (PCA) and later rotated with Varimax in the software PQMethod (version 2.35) (Schmolck, 2014). Four factors were extracted according to Humphrey's rule (Watts & Stenner, 2012). All factors and the related loadings of participant 1 to 25 are illustrated in Table 2. With factor loadings of ± 0.38 or above being significant at the $p < 0.01$ level, all 25 loaded on one or more of these four factors. As this resulted in the exclusion of six confounded Q sorts (3, 6, 16, 17, 19, 23) the significant factor loading was corrected to ± 0.42 , resulting in 22 Q sorts loading on one or another factor and reducing the number of confounded Q sorts to three (3, 16, 17) (Ibid., 2012).

Table 3. Rotated factor matrix. Defining sorts are indicated with an X. Confounded Q sorts are marked grey, loadings on confounded factors are marked with an x.

Q sort	1	2	3	4
1	0.0835	0.0450	0.2637	0.5819X
2	0.2747	0.6249X	-0.0899	0.1289
3	0.4949x	0.4613x	0.0044	0.2381
4	0.1187	0.4404X	0.0105	-0.0520
5	0.0828	-0.0508	-0.0811	0.5073X
6	0.0490	0.4073	0.3424	0.5232X
7	0.1132	0.6994X	0.1381	0.1284
8	0.2300	0.4888X	-0.1214	-0.0169
9	0.7815X	-0.0172	-0.1385	0.0793
10	0.6978X	0.1212	0.3089	0.2481
11	0.8185X	0.0825	0.0560	-0.1567
12	0.6811X	0.2477	0.1803	-0.1578
13	0.5348X	0.2006	-0.0556	0.1768
14	0.6521X	0.2297	0.2215	-0.0729
15	0.0706	0.6310X	0.0535	0.0946
16	-0.0349	0.1616	0.5126 x	0.4680x
17	-0.0021	0.4728 x	-0.2861	-0.4642x
18	0.6896X	-0.0707	0.0611	0.2505
19	-0.0993	0.7071X	0.3864	-0.1084
20	0.3651	0.3683	-0.0308	0.5922X
21	0.4219X	0.1683	0.2139	0.0795
22	0.6920X	0.2154	0.1130	0.2507
23	0.1313	0.6865X	0.4061	0.1471
24	0.2980	0.0009	0.7491X	0.1959
25	0.1671	0.0749	0.6652X	-0.1631

The four factors therefore account for 22 of the 25 Q sorts in the study. They together explain 52% of the study variance (19%, 15%, 9%, 9% respectively). The four factors represent joint viewpoints of the participants that loaded significantly on them. I will refer to them interchangeably as factors or groups. A typical Q sort for each group was conducted using weighted averaging (Brown, 1980). This factor arrays were the base for the interpretation of the four viewpoints. Secondly, I used results of the coding of the post-interviews to convey the reasoning of the participants. Third, the results of the pre-questionnaire display the characteristic of each group. Lastly, relevant quotes of interviewees are included.

2.6. Limitations

It is important to note that due to a study variance of 52% not all opinions expressed by each stakeholder are represented in the factors. Furthermore, this study does not evaluate and quantify the frequency of the collected viewpoints. However, results provide insights into values and assumptions held by the individuals sampled. These perceptions can inform policy making and can support legitimate decisions. However, this collection cannot be expected to capture all possible

viewpoints, a common criticism for studies using Q. Nevertheless, it has been found that repeating the study possibly produces very similar results (Stephenson, 1972).

Data collected in the pre-questionnaires indicates no strong opposition towards Tiny Houses among participants. It has to be kept in mind that this study includes people who know about Tiny Houses in order to evaluate the 47 claims of the Tiny House Movement with expertise, therefore findings do not display the overall local demand for this form of housing. This is due to the novelty of Tiny Houses in Germany. Nevertheless, Q is a suitable method for this context, as it is acknowledged for exploring new research fields (Barry & Proops, 1999).

Feelings are an important element of this method (Watts & Stenner, 2012). Consequently, the interpretation of the factor array and the narrative of the results in Q could lead to subjectivity. To ensure the holistic nature of each viewpoint without imposing my own views I used 'crib sheets'. This method is supporting a consistent and data-driven interpretation (Ibid., 2012). For additional transparency of the interpretation I include references to statements and the corresponding ratings.

The aim of this study is to identify shared mental frameworks of affordable housing stakeholders in Lüneburg. It has to be understood that factors do not fully represent individuals and all participants expressed ideas associated with several factors.

Some participants mentioned in the post-interviews that their viewpoint is likely to change over time. Barry & Proops (1999) also recognize this limitation. Consequently, it has to be understood that this study displays viewpoints of spring 2018. The term might have biased people's opinion. Additionally Repeating the study in fall or winter might produce different results due to the connection to nature and built environment tiny living demands.

In addition, some participants were irritated by the forced distribution and felt limited in expressing their viewpoints. This has been recognized in other Q studies and could be avoided with a free distribution, i.e. allowing to sort any number of statements to any of the given rankings. However, a free distribution can also cause distress due to even more decisions that have to be made by the participants (Watts & Stenner, 2012).

Q method is criticized to limit findings due to pre-selected statements (Danielson, 2009). Moreover, there is no universal method to generate a Q set as demands vary by study context (Stephenson, 1953). In this study, I generated statements based on media used by Tiny House advocates (Ford & Gomez-Lanier, 2017) to extract common claims of the Movement. This approach produced statements that originated from different local contexts than the study site. Furthermore, it has to be acknowledged that I did not complete a content analysis but used the resources to develop a structured Q set that covers the relevant ground (Watts & Stenner, 2012). I performed a dry-run with an expert to ensure balance and relevance of the Q set. Secondly, I asked in the post-interviews if participants are aware of an effect of Tiny Houses that is not represented in the Q set (see Appendix E). Overall, participants stated their thoughts were stimulation but not limited by the statements.

3. Results

I titled the four factors according to the nature of the opinion they hold in common. These four perspectives, namely 'Fulfillment', 'Awareness raising', 'Individual lifestyle' and 'Bridge peaks' are displayed below. The statements used in this study and the exemplifying Q sort for each group, are displayed in Table 4. Distinguishing statements however, i.e. statements that one group sorted significantly different than other groups are highlighted in grey. The last column indicates the rank of the statements along the criteria consensus vs. disagreement. The resulting viewpoints are displayed in a narrative, while reference is included in brackets. The first number in the brackets is the number of statement this finding in referring to (see Table 4, Statement 1-47). The second number in the bracket indicates where this statement was sorted in the typical Q sort of this group (see Table 4, factor array column). Factor arrays range from -5 to +5 according to the forced distribution that was used for this study. Therefore, the reference (47: 5) indicates that statement 47 was sorted at +5 by this group. Searching the statement number 47 in Table 4, shows additionally that this statement is a distinguishing statement for factor 1 as the column is highlighted grey, i.e. this statement is sorted in a unique fashion by factor 1 and therefore indicates a diverging viewpoint on the matter of the statement.

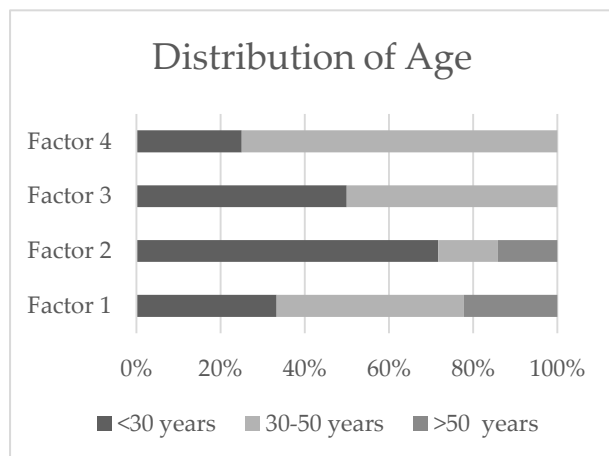
Table 4. Research statements and factor scores. Distinguishing statements of each factor are highlighted in grey, rank by consensus vs. disagreement

Number of participants significantly associated with this factor		Factor				
		1	2	3	4	
		9	7	2	4	
#	Statements	Factor array				Rank
1	Tiny Houses are cheaper than other types of affordable housing	2	-3	0	0	23
2	Tiny Houses make home ownership affordable	1	0	3	3	9
3	The high initial investment for a private Tiny House is recommended for people with low income due to the money they save in the future	0	-2	-2	0	14
4	The economical costs of constructing Tiny Houses puts people with low income at risk to live in uninhabitable dwellings	-3	0	-4	0	26
5	The Tiny Houses we are seeing are not cheap - surely the same money could be put towards a deposit on a small traditional house, not a Tiny House, with a better end result	-4	-1	0	1	28
6	The price for land is the major factor in areas of high demand. Therefore, high-rise residential dwellings will be the most efficient use of resources	-1	0	1	5	40
7	The price for land is rising dramatically, therefore reducing square footage is one solution to keep home ownership affordable in areas of high demand	1	1	5	3	21
8	This Movement points to growing insecurity and a troubling future in which temporary, unstable, and atomized living arrangements potentially become the norm. What's next? Coffin Homes where you live in a slot in the wall?	-4	-3	-1	1	35
9	As spaces in city housing are cut into smaller and smaller swaths, designed to privileged young, independent, salaried workers, the most vulnerable members of the community lose out	0	4	3	-3	39
10	Rushed construction of affordable housing can be unattractive and unsustainable. Tiny Houses on vacant lots can be a solution to bridge the current lack of affordable housing until the market catches up	-1	0	-3	3	36
11	Tiny Houses can be used for creating additional space, alongside the main house	1	1	1	2	1
12	Tiny Houses are a fad. It is not a solution to our current housing crisis. And just try getting rid of them in a few years	-5	-1	-5	-1	34
13	Small square footage of Tiny Houses moderates energy use and significantly reduces utility costs	3	1	-1	0	22
14	Reducing utility costs is a way to increase the affordability of a home for people who struggle with having enough money at the end of the month	3	5	-5	4	47
15	Provide space for people to grow their own food should be considered when creating affordable housing	1	1	2	-1	10
16	There is no significant correlation between urban gardening and Tiny Houses	-3	-1	0	-1	6

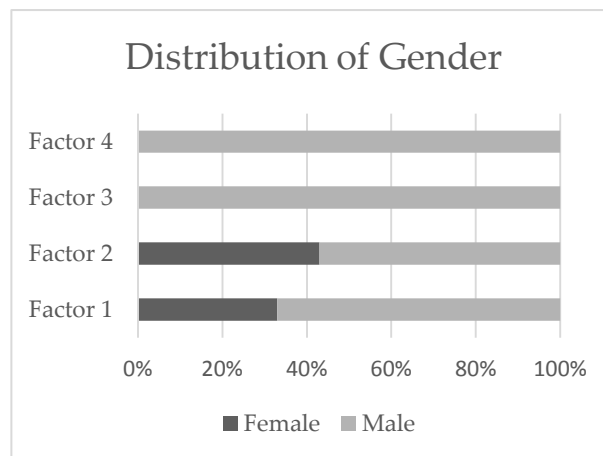
17	People living in communities of Tiny Houses share infrastructure and tools and therefore reduce expenses for all	4	2	0	2	7
18	Sharing infrastructure and tools leads to conflicts in Tiny House communities	-2	-4	-3	-3	2
19	When living in a Tiny House one is very dependent on other people, for some this might be a unstable living situation and lead to homelessness	-2	-3	-1	-2	3
20	Tiny House inhabitants are self-sufficient, this creates a stable living condition, as they don't rely on other people	-1	-3	-4	0	11
21	The popularity and romantic image of Tiny Houses leads to donations and the engagement of volunteers and therefore creates affordable housing quickly and unbureaucratic	1	-4	1	1	29
22	Tiny Houses help their inhabitants find financial stability through minimalism as they limit consumerism	3	-2	2	0	30
23	Life in a Tiny House does not reduce consumerist behavior. While accumulation of stuff might be limited to reduced space, inhabitants demand more of other goods and services than in traditional housing (e.g. eating out more frequently)	-1	0	0	-4	17
24	Downsizing might be a healing strategy for fortunate people, for the poor this credo is ironic	-3	4	-3	1	44
25	Videos detailing the happiness of Tiny House owners are a genre of lifestyle media, they don't display the reality of people with low income	-2	4	1	-1	41
26	Tiny Houses can reduce the costs of public services such as police, emergency rooms, and jails. This is because people experiencing homelessness have access to comfortable, safe, dignified housing instead of homeless shelters or depending on hosts	-2	1	3	-3	38
27	Tiny House communities make poverty visible and can lead to a discrimination of the inhabitants	-3	-2	1	-2	18
28	Tiny Houses are an euphemism for garden shacks, not housing in dignity	-5	-5	-2	-3	20
29	The Tiny House Movement embraces individualistic visions of property while ignoring the real causes of the housing shortage	-2	3	-2	-2	42
30	The charm of Tiny Houses is that they can be designed to the individual needs of their inhabitants, this is a new perspective for people with low income who often live in standardized apartments, e.g. the accessibility can be easily adapted to handicaps	4	2	3	3	4
31	It will be difficult for Tiny House owners to find a lot	0	3	4	1	19
32	The unclear legal situation of Tiny Houses brings inhabitants in uncomfortable living situations	2	1	4	2	16
33	Tiny Houses can be put anywhere	0	-2	-4	-4	24
34	Zoning and building codes should be adapted to the demand for Tiny Houses	5	3	-3	2	43
35	Tiny Houses increase environmental injustice as people with low income are displaced to areas with noisy streets, industrial areas, and lack of infrastructure	-1	-2	-2	0	15
36	Renters who move frequently or people entering the housing market have a disadvantage due to rent adjustments, Tiny Houses on wheels are a solution for this problem	-1	-1	2	-2	25
37	Tiny Houses are attractive to all sorts of people demanding affordable housing	-1	-5	2	-1	45
38	Tiny Houses are attractive for students living alone or with a partner	4	3	0	5	32
39	Tiny Houses are attractive for people +65 living single or with a partner	0	-1	-3	-4	27
40	Tiny Houses are attractive for refugees living alone or with a partner	0	2	-1	4	33
41	Tiny Houses are attractive for people experiencing homelessness	0	2	3	2	5
42	Tiny Houses are attractive for families	2	-4	-1	1	37
43	Politicians failed to ensure sufficient affordable housing	3	5	4	4	8
44	Tiny Houses empower people with low income to change their own living situation	2	-1	1	-1	13
45	Tiny Houses are a lifestyle trend, they are not suitable for people with low income	-4	0	-1	-5	31
46	Tiny Houses can be combined well with other social services low income groups demand	2	0	0	-2	12
47	Everybody should be allowed to live in a house of their choice, politics should not limit people's freedom in designing their own house	5	2	2	-5	46

3.1 Summaries of the Background of Participants of each Group

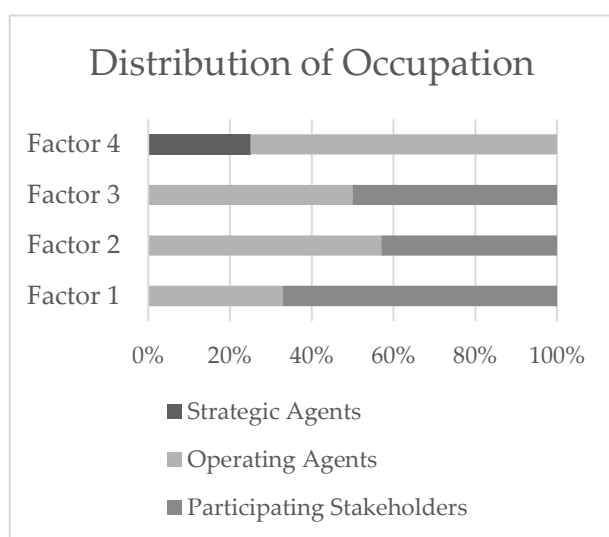
In the following section, I subdivided the results of the pre-questionnaire to display the characteristics of each group. The breakdown of the participants loading on each factor is displayed. The figures will support the interpretation below.



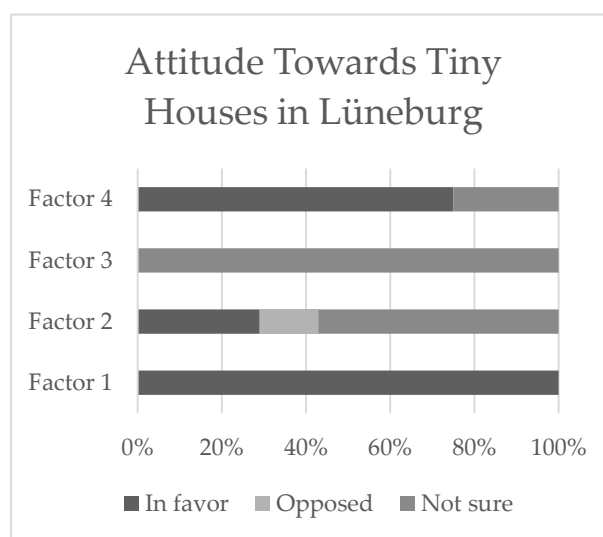
(a)



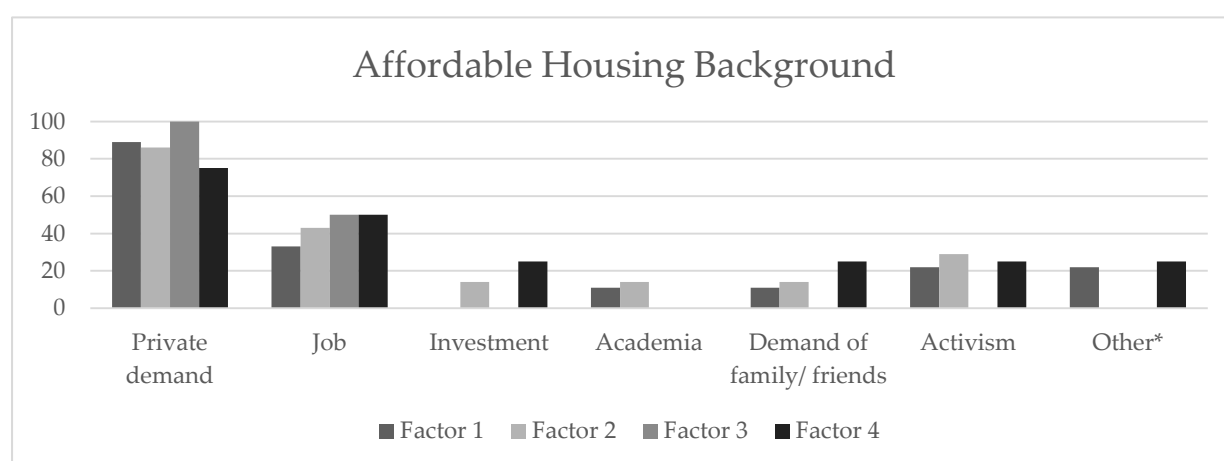
(b)



(c)



(d)



(e)

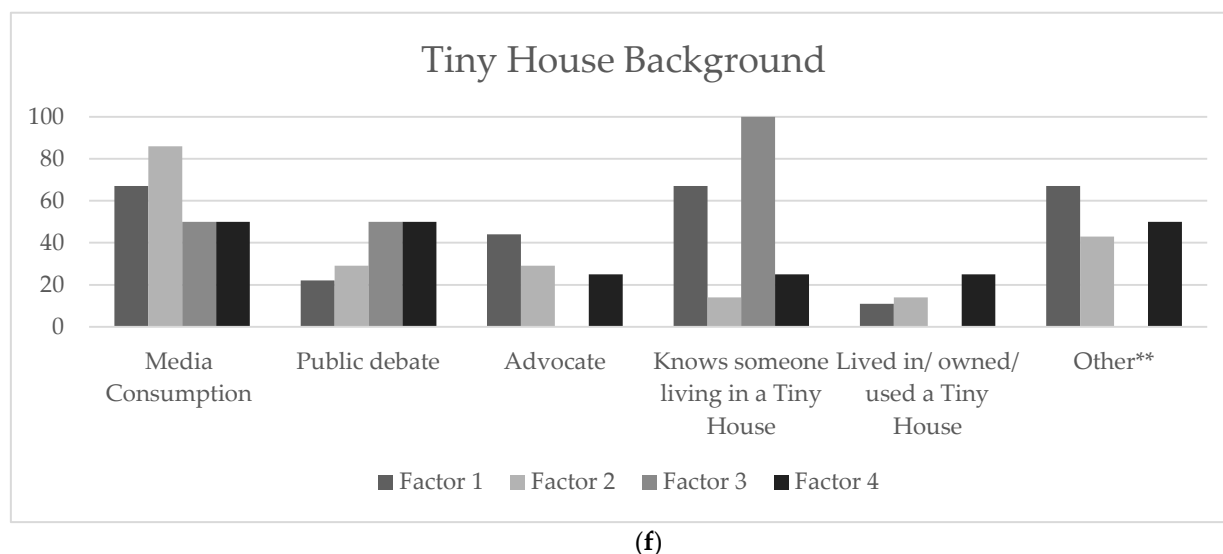


Figure 4. Demographic summaries of the four factors based on pre-questionnaire data of the 22 individuals with factor defining Q sorts. (a) Distribution of Age; (b) Distribution of Gender; (c) Distribution of Occupation; (d) Attitude towards Tiny Houses in Lüneburg; (e) Affordable Housing Background (Other*: founder of a Tiny House community, app-developer, formerly homeless;); (f) Tiny House Background; (Other**: investment, academia, founder of a Tiny House community, founder of a Tiny House initiative, currently building one, job (2), living in similar dwelling (5)),

3.2 Fulfillment

Nine participants significantly associated with the first perspective, I labeled 'Fulfillment'. This perspective is convinced of the benefits of tiny living for the individual. Participants emphasize Tiny Houses are not a one size fits all solution but claim that freely chosen, it can be an affordable housing option that has numerous positive side effects. The main goals for this group are personal fulfillment and minimalism. Tiny Houses are understood to create consistence in values like connectedness to nature and do it yourself.

The background of the participants is displayed in detail in Figure 4. This group demands affordable housing. Many currently live in a similar dwelling and most of them know someone who lives in a Tiny House. Many advocate Tiny Houses. Mostly participating stakeholders are represented in this group. Four participants are currently not professionally employed due to unemployment, legal status or studies. All state they hope to see Tiny Houses in Lüneburg in the future.

Freedom and self-realization in designing one's own house is important to participants in this group (47: 5). Tiny Houses can be customized to individual needs (30: 4) which can lead to a high living standard (28: -5), e.g. luxury material could be affordable due to small scale and often is accessible for free.

These participants understand Tiny Houses as best placed in a community (20: -1) which reduces expenses (17: 4). Simultaneously, people significantly loading on this group are aware of but not preoccupied with conflicts this might create (18: -2). A participant that was homeless before moving into a manufactured home, further states an improved quality of life through social and cultural activities in the community. A woman living in a mobile home with her daughter additionally appreciates the balance between community and privacy this type of housing creates.

"The mix of community and privacy is ideal for me, like in a village back in the days" (I 14)

Individuals with this viewpoint evaluate Tiny Houses as suitable for two main groups demanding affordable housing in the city, namely families (42: 2) and students (38: 4). The additional use along with a main house is also seen as a viable solution (11: 1), e.g. for housing family members when they wish to live alone but need minor support. People in this group do not think this lifestyle is for everybody (37: -1). Especially, it is not understood as one size fits all solution for housing low income groups like elderly people (39: 0), refugees (40: 0) or people experiencing homelessness (41: 0), as money (3: 0), material (21: 1), skills and a social network must be accessible.

“Responsibility is a key skill one must bring. Who is able to light a fire these days? If a municipality really wants to burn some money, they invest in a few, like 100 Tiny Houses and provides them to people. In my experience, those will be run down in about three years. It’s not a life where you just come home and sit down in front of the TV” (I 11)

Simultaneously, individuals must freely choose this way of life (39: 0) in order to lead to the happiness displayed in media (25: -2). Downsizing is more than just a trend (24: -3) and Tiny Houses provide economic benefits for people with low income (13: 3), as they are cheaper than other types of affordable housing (1: 2), reduce costs for utilities (13: 3), and limit consumerism (22: 3). Individuals of this group do not see a traditional house as viable alternative (5: -4), as tiny living is a lifestyle decision where return on investment and possession play a minor role. The low financial liability compared to a traditional house is appreciated.

Tiny Houses are evaluated to be a positive development (8: -4), creating empowerment (44: 2) and supporting a healthy life (16: -3), due to an increased connectedness with nature. At the same time, finding a lot is not a problem (33: 0). An architect believes that vacant lots for transitional use will open up periodically and availability of affordable land is more a matter of political will than shortage (9: 0). A participant living in a similar dwelling to a Tiny House compared tiny living to underseeding crops in agriculture. He states, in areas difficult for development, Tiny Houses are ideal for subsidence sites, air corridors, and areas zoned as unsealed lots (e.g. compensating area for roads). Connectedness to nature but also to the built environment is a reoccurring theme in the interviews.

“Being connected with the outside world is the strongest argument for me to live this way, this living room, because it has a very pleasant ceiling height, does not have walls, and I do not have to leave my living room, I can go into town and I’m still at home” (I 11)

People associated with this viewpoint see major benefits in spaciouly arranging Tiny Houses to dense and vertical housing (6: -1), e.g. a musician enjoys practicing without affecting neighbors and a journalist associates a feeling of freedom and independence with this open space. For these individuals this form of housing does not lead to discrimination (27: -3) but participants witness a risk for environmental injustice (35: -1). This can be avoided when living in a community because activism increases bargaining power of the inhabitants. Legal barriers that currently exist hinder many from realizing their dream to live tiny and therefore this factor demands a clear legal solution in the future (34: 5).

3.4 Awareness raising

Seven participants determine the second factor 'Awareness raising'. Representatives are not convinced of the benefits of tiny living and they see Tiny Houses as a patch that ignores the real causes of housing scarcity. However, these stakeholders see an opportunity to use Tiny Houses to start a conversation and raise awareness about sustainability issues.

Most of them demand affordable housing, some professionally engage with this issue. Individuals of this group consumes more media about Tiny Houses and are younger than people in other groups. Few additionally engage in public debates, describe themselves as advocates of the Movement, or currently live in a manufactured home. The majority are operating agents.

For the representatives of this group politics are responsible for the current inequity on the housing market (43: 5) and gentrification in the city (9: 4). Since not opposed to the idea of Tiny Houses (34: 3) people with this viewpoint admit that it might be an attractive lifestyle for a minority (37: -5). On the other hand, Tiny Houses are not perceived to be suitable for people with low income (24: 4). Reasons are that they are not cheaper than other types of affordable housing (1: -3) and the high initial investment required to set up Tiny Houses is not easily accessible to everybody (3: -2). Furthermore, these participants disagree that life in a Tiny House triggers minimalism (22: -2) and empowerment (44: -1). Moreover, the promises of the Movement are perceived to be an illusion (25: 4).

"Even with Tiny Houses, the remaining spots in the city center will be occupied by the privileged who can afford it" (I 19)

People associated with this factor do not believe Tiny House owners will be discriminated against (27: -2) in contrary, a single father criticizes the high financial barriers for people with low income. Furthermore, these stakeholders doubt that donations will significantly contribute to overcome those barriers (21: -4).

"I do not think it will create affordable housing, this is a lifestyle trend, for people who use it for other purposes than housing, like workshops, exhibitions, office space, libraries and places to meet with other young academics. I believe willingness for donation for the former is much lower, because it is about solving real political problems, maybe even taking responsibility and therefore I see less interest than supporting a utopia" (I 7)

A journalist argues that affordable housing cannot be left to volunteers and bottom-up movements, as housing is a human right and should not be handed patronizingly. Therefore, the state should ensure housing suitable to local standards for everybody. Individuals associated with this group worry that individuals searching for freedom (29: 3) restrict themselves in uncomfortable, short term living situations due to bureaucratic barriers (33: 3). A social worker of the department integration and asylum further associates social stigmas to this form of housing.

Tiny living is not perceived to be attractive for families (42: -4) because of small space with little privacy. Simultaneously, the risk of a capitulation of the individual, without removing root causes of inequity on the housing market is emphasized (1:- 1).

"We see families, who lived in Lüneburg for generations, being forced to leave the area when increasing in family size, I see no reason to offer these people a trailer. Reality is, they move out to the east [of the city] and then just go to work by bus" (I 19)

Other than being the solution for housing scarcity, the founder of a Tiny House initiative evaluates this Movement as opportunity to debate political issues and start a conversation about minimalism, equity, homelessness, affordable housing, immigration, community, and public space.

“Living space per person increases annually but there is a discrepancy in distribution. Many questions confronting the Tiny House Movement are similar to other forms of living in the end” (I 23)

These participants claim current building and zoning codes secure living standards and limit environmental injustice (35: -2) and further support the idea of adjusting them in order to secure these rights for people who choose to live tiny (34: 3).

“In order to rethink and reinvent housing, especially in cities where living is increasingly difficult, I think it would be efficient to finally adapt zoning codes” (I 7)

For scaling up the idea to a more economically viable and equitable solution an urban planner suggests stacking Tiny Houses vertically and create community spaces to make up for reductions in private space.

3.4 Individual Lifestyle

Two people are significantly associated with the third viewpoint, ‘Individual lifestyle’. These stakeholders emphasize the complicated dynamics of homelessness and criticize Tiny Houses as having even higher investment barriers than other forms of affordable housing in Lüneburg. Yet, people associated with this factor acknowledges they might be attractive for people currently neglected on the housing market when investment barriers are reduced, and a social mix ensured.

Only men are represented in this factor. Individuals are employed in public and social services and demand affordable housing. One is department manager for housing and shelter. Both know someone who lives in a Tiny House but are unsure if they want to see Tiny Houses in Lüneburg in the future.

This perspective shows no opposition to the idea of using Tiny Houses to create affordable housing (12: -5) for diverse groups (37: 2). While these participants can imagine Tiny Houses for transitional housing (26: 3) or people experiencing homelessness (41: 3), more risk for discrimination is perceived than by other groups (27: 1). Moreover, people associated with this viewpoint see an answer to an increased desire for mobility in society (36: 2) and the adaptation of housing to individual needs (32: 3). Tiny Houses are not perceived as a gateway to create uncomfortable living conditions (4: -4) but it is understood that people experiencing homelessness, often need social services not just a dwelling (34: -3).

“A project with Tiny Houses can certainly be an opportunity to allow people a life in dignity. Most do not demand a villa but simply a dwelling, in my experience however, people who come to the homeless assistance, need also other social services, thus simply to say here you have a Tiny House won’t work out. We need a social mix” (I 24)

On the other hand, Tiny House inhabitants are perceived to depend on other people, which can create unstable living conditions (20: -4). The manager for housing and shelter further questions the benefits of switching from currently well-organized homeless shelters to Tiny Houses. The viewpoint indicates awareness of gentrification (9: 3) but participants associated with this factor see this dynamic, occurring with or without Tiny Houses (35: 2) and therefore demand a social mix in all

housing projects. Tiny Houses for these participants are rather a chance for the individual to escape social pressures and change their own living situation (44: 1). Other than economic reasons, these participants think downsizing can be a good way to simplify life (24: -3) and break out of standardized conditions (30: 3).

“Individual lifestyles are important. If everybody has the opportunity to live the way they want is it a great development” (I 25)

People associated with this factor don't think that utilities have a significant impact on affordability (14: -5) as the price for land is the major cost factor (7: 5) and the creation of affordable housing in general is limited by political will rather than financial (I 24) or planning resources (10: -3).

“The Movement is a reaction to the absolute failure in creating affordable housing, for me a basic right like air or water” (I 24)

While alternative housing projects currently happening in the city are appreciated, a gardener criticizes that those exclude many less fortunate. Therefore, these individuals remain careful towards adapting building and zoning codes (34: -3) to not allow a further gentrification in the city. While Tiny Houses are perceived as a lifestyle trend, they can still be suitable for people with low income (45: -1). For scaling up the solution these stakeholders consider a mass production of Tiny Houses to reduce barriers to participate, like social network, skills and initial investment.

3.5 Bridge Peaks

Four individuals are significantly associated with the last group 'Bridge peaks'. This perspective indicates that space in high demand areas should be used for forms of affordable housing that are more economically viable and culturally more suitable for Lüneburg. However, these stakeholders state that Tiny Houses can be attractive to create additional space quickly if the city has to bridge peaks in demand.

Again, only men are associated with this factor, most of them demand affordable housing and some work in this field. Half of them consume media about Tiny Houses, others engage in public debates, while one participant is currently building a Tiny House. Participating stakeholders are not represented in this group that mainly consists of operating stakeholders.

These people generally support the idea of Tiny Houses but are unsure if this is the most economically viable solution for Lüneburg (1: 0). Representatives don't think Tiny Houses (45: -5) and downsizing in general (24: 1) are suitable for people with low income. While making home ownership affordable (2: 3), these participants claim a short durability of Tiny Houses limits economical implementations (3: 0). When considering the high initial investment of Tiny Houses (3: 0) and use of space, building vertically will be the most efficient use of resources for people associated with this group (6: 5). A politician made positive experiences with mobile homes when bridging peaks in demand for refugee accommodation (10: 3) but does not see a current necessity.

“The sustainability criterion for me is how much sqm of space do I need to produce living space for what amount of people. The advantage of Tiny Houses is the immediate availability, but it is not the most efficient use as far as the sqm are concerned” (I 6)

For this group Tiny Houses do not reduce utilities (13: 0) due to a low energy efficiency of small structures. People associated with this factor assume that the lack of affordability will therefore not

meet local demands (43: 4). A social housing manager states the investment in social housing was recently picked up and perceives the biggest barriers in creating new affordable housing in the city to be the prices for land and personnel capacities of construction companies.

Members of this group witness less gentrification in Lüneburg's core than other university cities (9: -3) as social housing thrives to reduce inequalities and ensure social peace. Furthermore, the German social system, building, and zoning codes (35: 0) ensure high living standards (47: -5) and a harmonic townscape that should not be negatively affected by a minority that chooses an individual lifestyle.

"I consider building law regulations to be correct and important. Certainly, a lot of thinking has to be invested into the adaptation of zoning codes to include all interests" (I 20)

On the other hand, people associated with this group perceive a potential for redensification (11: 2) in line with townscape. Furthermore, students (38: 5) develop self-sufficiency (23: -4) and can realize ecological ideals. While an urban garden does not necessarily have to be available with affordable housing (15: -1), Tiny Houses are seen as opportunity to test green innovations.

"There are good reasons why wastewater must be treated but this prevents the possibility of ecological decomposition through compost toilets, regulations could perhaps become a little more flexible" (I 1)

Representatives see a chance for refugees (40: 4) to be integrated in Tiny House communities rather than in more isolated forms of living. On the other hand, a researcher criticizes that the idea of integration is not necessarily met when housing people in 'unusual' conditions for local living standards. People associated with this group do not see these benefits to be necessarily accountable for housing the homeless (26: -3) as they require access to infrastructure that is often lacking for Tiny House lots (35: 0).

3.6 Communalities and Disagreement

The correlation between the factors displayed in Table 4 describes the extent of similarity between the groups. Overall positive correlations indicate that there are similarities among all viewpoints. However, a correlation figure of 0.1645, between 'Individual lifestyle' and 'Bridge peaks' and a correlation figure of 0.2584 between 'Individual lifestyle' and 'Awareness raising' indicate that participants of factor 3 are likely to contradict with the viewpoints of group 2 and 4.

Table 4. Correlation between factors.

	Factor 1	Factor 2	Factor 3	Factor 4
Factor 1	1,0000	0.3327	0.3755	0.3360
Factor 2	0.3327	1.000	0.2584	0.3721
Factor 3	0.3755	0.2584	1.0000	0.1645
Factor 4	0.3360	0.3721	0.1645	1.0000

In order to assess why people associated with 'Individual lifestyle' are likely to disagree with viewpoints of 'Awareness raising' and 'Bridge peaks', consensus statements (i.e. statements that are similarly arranged between factors) and statements of disagreement (i.e. statements that are

differently arranged between factors) will be analyzed. The last column in Table 4, shows the rank of each statements among the criteria agreement to disagreement. Additionally, main points of consensus and disagreement are displayed in Table 5.

Table 5. Statements of Consensus and Statements of Disagreement

#	Statements of Consensus	Factor	1	2	3	4	#	Statements of Disagreement	Factor	1	2	3	4
11	Tiny Houses can be used for creating additional space, alongside the main house		1	1	1	2	24	Downsizing might be a healing strategy for fortunate people, for the poor this credo is ironic		2	-1	1	-1
18	Sharing infrastructure and tools leads to conflicts in Tiny House communities		-2	-4	-3	-3	37	Tiny Houses are attractive to all sorts of people demanding affordable housing		-1	-5	2	-1
19	When living in a Tiny House one is very dependent on other people, for some this might be a unstable living situation and lead to homelessness		-2	-3	-1	-2	47	Everybody should be allowed to live in a house of their choice, politics should not limit people's freedom in designing their own house		5	2	2	-5
30	The charm of Tiny Houses is that they can be designed to the individual needs of their inhabitants, this is a new perspective for people with low income who often live in standardized apartments, e.g. the accessibility can be easily adapted to handicaps		-3	0	-4	0	14	Reducing utility costs is a way to increase the affordability of a home for people who struggle with having enough money at the end of the month		3	5	-5	4

Most similarity between all four perspectives was found in terms of statements 11, 18, 19, and 30. Indicated by statement 11, viewpoints show consensus in terms of the potential use of Tiny Houses as additional space along with a main house. Furthermore, participants are generally not preoccupied with conflicts when organizing Tiny Houses in a community. Simultaneously, perspectives resemble in the notion that Tiny House inhabitants are at risk to live in unstable living conditions due to dependence on others. Participants see the charm of Tiny Houses to be that they allow inhabitants to customize them for individual needs. In contrast, perceptions strongly disperse in terms of statements 14, 47, 37, and 24.

The similar ranking of statement 2 indicates that participants agree that a reduction of utility costs makes a home more affordable. However, people associated with factor 3 claim, that this is not the major barrier for people with low income. Placement of statement 47 indicates that participants of 'Fulfillment' strongly believe everybody should live in a house of their choice, but individuals of 'Bridge peaks' strongly disagree with this statement and emphasize the importance of building and zoning codes. Ratings of statement 37, indicate that participants of 'Awareness raising' strongly and others lightly disagree with the claim of individuals in the third group, that Tiny Houses could be attractive for all sorts of people demanding affordable housing. Another statement that is partly contested is statement 24. While participants associated with factor 2 and 4 think downsizing is a theme claimed by the fortunate, people in group 1 and 3 disagree.

4. Discussion

The research question (1) ‘What are perceptions of informed stakeholders regarding Tiny Houses as a contribution to affordable housing in Lüneburg?’ is answered by the four viewpoints displayed above. Out of 22 individuals, the four salient viewpoints, ‘Fulfillment’, ‘Awareness raising’, ‘Individual lifestyle’ and ‘Bridge peaks’ could be extracted.

In the following the underlying values of the different perspectives and how perceptions differ in terms of the contribution of Tiny Houses to affordable housing will be discussed. Moreover, suggestions how compromises can be reached will be derived from the results.

4.1. Underlying Values

Tiny Houses are advertised as innovative sustainability solution. However, similar housing trends have existed for decades and reoccur in different gestalt at times of “conflicts about fundamental beliefs of home and community and conformity and individuality” (Wallis, 1999, pp. 22-23). Therefore, to fully understand the values stakeholders associate with these dwellings is a crucial element of the task of sifting through the glamorization of this Movement. Findings indicate the four viewpoints share conflicting as well as common values. Values of participants associated with ‘Fulfillment’ and ‘Awareness raising’ can be found in movements of the urban commons, where economic outcome plays a minor role compared to building relationships and trust (Carlsson, 2008). Moreover, materialism is consciously neglected by the urban commons movement and alternative values are emphasized. This paradigm shift is supported through learning from and with each other, experimentation and creativity (Carlsson, 2008, p. 46). People associated with ‘Bridge peaks’ also value this innovation potential of Tiny Houses.

Participants associated with ‘Awareness raising’ value political correctness and have the desire to educate others about sustainability issues. These participants fear an increased gentrification when allowing Tiny Houses in dense areas. Similarly, people associated with ‘Individual lifestyle’ worry that the high financial barriers of the movement hinder a social mix. The interest in Tiny Houses of these participants derives from their personal aim for equality in society. Tiny Houses are appealing to them due to the low access barriers this movement claims to provide.

To the contrary, people associated with ‘Fulfillment’ understand Tiny House communities as a strategy to win back urban space from investors and capitalistic paradigms. Chatterton & Pickerill (2010) claim that shared productivity in urban spaces and the relationships that are created by this process are a crucial yet undervalued element of spatial justice.

On the other hand, individuals of ‘Awareness raising’ and ‘Bridge peaks’, claim that Tiny Houses risk established standards of housing. Mostly stakeholders of ‘Bridge peaks’ are convinced that dynamics of the social state through laws and regulation will be the best way to tackle housing issues. These participants especially value Lüneburg’s historic townscape and demand architecture that preserves it. Similar to these findings Sauve (2017) criticizes the Tiny House Movement’s rejection of the needs of low-income workers and suggest socialist alternatives like demanding control over time and work, access to affordable housing, better incomes and environmental justice.

The individuals associated with ‘Fulfillment’ claim however, that Tiny Houses already provide these assets. For this group, tiny living reduces expenses and therefore provides independence of income. This results in available time for the inhabitants, that these participants claim to use for creative tasks like DIY and spending time in nature.

4.2 Contribution to affordable housing in the city

Findings show a high awareness about gentrification dynamics in the city and a common ground that these have to be reduced. They vary however in the way they believe Tiny Houses can contribute to this process. Stakeholders associated with 'Bridge peaks' trust in the implementation of zoning codes and the recent reuptake of social housing investments (Hansestadt Lüneburg, 2016). While they doubt the affordability claim of the Movement they see an opportunity to test housing innovations like composting toilets. This is exemplified by the social start-up *Goldeimer*. They currently are touring in the region with a self-built Tiny House and raise awareness about sanitation, composting toilets, and water waste (Altonale, 2018). Individuals of 'Awareness raising' additionally suggest transferring the values and paradigms of the Movement into micro units. This form of alternative housing is also promoted by the architect Van Bo Le-Mentzel who tested Tiny Houses for one year (Bauhaus Campus, 2018). If this is in line with the thrive for connectedness to nature of people associated with 'Fulfillment', is unclear. People in group 2 and 3 are further sceptic if market dynamics will reduce current injustice on the housing market and therefore demand discourse and public participation processes.

While stakeholders associated with 'Individual lifestyle' do not see Tiny Houses as up-scalable contribution to the housing supply in the city, they value Tiny Houses as tool for raising awareness about inequity on the housing market. The perspective of 'Fulfillment' however indicates that there are indeed people in the city that value tiny life and see several positive side effects. The other groups respect this choice and have a generally positive opinion about the underlying values of the Tiny House Movement. Therefore, most viewpoints match in terms of the requirement of building and zoning codes to secure this way of life for people who want to live that way. However, interpretation indicates that this lifestyle is not for everybody and most participants don't see it as equitable alternative for people with low income.

In contrast participants associated with 'Individual lifestyle' see it as suitable for everybody but do not support the adaptation of building and zoning codes if this means more space in the city is delegated towards people that can afford an independent lifestyle. Along these lines these stakeholders think Tiny Houses have even more financial barriers than other forms of affordable housing in Lüneburg. Their suggestion of using pre-fabricated houses in order to reduce financial barriers would probably be opposed by individuals of 'Fulfillment' as this is contradicting with core values of DIY they share. Yet, people associated with 'Individual lifestyle' acknowledge Tiny Houses might be a tool for integrating some of the up to 100 people that are currently homeless (LZ, 2017). If they wish to live this way, access is supported, and a social mix ensured.

Wyatt (2014) found that the desire for a social mix as demanded by participants associated with 'Individual lifestyle' causes tensions in Tiny House communities, and therefore suggests to set priorities who will be served. Experiences with Tiny Houses to house people that have problems finding housing or experience homelessness have been found to have positive outcomes in in the U.S. (Brown, 2016). However, such projects are criticized by housing experts in Germany, because Tiny Houses are not suitable to address complex challenges. Therefore, Neupert (2018) claims Tiny Houses do not serve as a substitute for social housing efforts.

Moreover, findings show people who significantly loaded on 'Bridge peaks' are convinced that living tiny is not only a personal decision. This form of housing poses various infrastructural and social implications and risks undermining tenants' rights. It was found that Tiny Houses are not perceived suitable to contribute significantly to affordable housing and are not likely to replace

construction of traditional housing in the city. A common claim among all participants is that 'nobody should have to live in a Tiny House if they don't desire to'.

4.3 Reaching Compromises

Results indicate there might not be a one size fits all implementation in the city. The found factors point out diverse applications that are directed towards different goals and challenges they witness. Considering limited space, Tiny Houses are not seen as viable alternative to other forms of housing in Lüneburg's highly demanded areas. Findings demonstrate however, a lot of the charm of Tiny Houses lies in the political values they represent, therefore a limited assessment to its characteristics as housing type remains difficult. The general openness to the trend shows a potential to use Tiny Houses for awareness raising campaigns, participation processes and testing innovations in the city. In addition, the tolerance towards the two existing communities of manufactured homes should be maintained. Furthermore, legal barriers for people who choose to live this way need to be reduced by adapting zoning and building codes in other areas as well. However, the adaption of regulations has to be carefully tested and developed in a participatory fashion in order to reduce risks of undermining tenant's rights and excluding low-income groups. Tiny Houses cannot substitute traditional housing efforts and a social mix has to be emphasized similarly to other forms of housing. The potential application for an inclusive project that reduces barriers for homeless people and people with low income is contested. Therefore, it should be assessed by experts before further implementation. A social mix is crucial for the acceptability of all new housing projects due to the limited availability of the resource space. It should not be underestimated that some view Tiny Houses in communities with shared spaces and values. Such an alternative lifestyle cannot be imposed top-down but evolves out of growing relationships and creative processes. Others dreaming about living tiny might have a distinct vision of community not represented by the viewpoints in this study.

I recommend an open discourse between participating stakeholder and strategic and operating stakeholders. Participating stakeholders should be aware that oppositions might arise due to implication for townscape, tenants' rights and equity in the city. Respecting these perceptions will support policy making and reduce risks. Operating stakeholders can use these findings to facilitate mutual learning between bottom-up developments and top-down legislation. Simultaneously, these results might support strategic stakeholders in detecting goals and values of different requests they are confronted with. Therefore, adapting building and zoning codes for the use of Tiny Houses for awareness raising might differ from adaptation for their use as housing type or for testing innovations.

5. Conclusion

The current lack of affordable housing is deep rooted. Knowing the areas of agreement and disagreement between the perceptions of informed stakeholders is important for the development and successful implementation of acceptable policies. The examination of perceptions among affordable housing stakeholders at the local level has proven that Tiny Houses are not a free ticket to sustainability and most definitely not a significant contribution to reduce housing scarcity. However, the Movement's potential to start debates about consumerism and inequity is further proven with this study. This may be due to its attractiveness for different socio-economic groups and the positive emotions it triggers in a debate that often is exclusive and concentrated on problems rather than solutions. Furthermore, criticism towards Tiny Houses, such as high barriers to participate, exclusion of low income groups and inefficient use of space is similar to general problems on the housing market. Therefore, Tiny Houses seem to be an attractive model of a solution. Debates on Tiny Houses as a potential solution can help to address current problems and find ways to solve them. Furthermore, potential compromises among the different viewpoints are evident. These findings can support a more inclusive and just distribution of housing in the city. While Tiny Houses as a free-standing structure don't fit into locals' visions for an up-scalable, inclusive housing alternative, the values the Movement claims are shared by several participants and all of them could relate to at least some of them.

Implementation of Tiny Houses in Germany is still in its infancy, and surely a lot of learning processes and debates about their contribution to affordable housing will follow this study. However, the given viewpoints can be used as a starting point to design participation processes that include diverse opinions and stakeholder into the process of designing such regulations. A Tiny House designed for stakeholder engagement would most definitely be a good place to meet and exchange ideas about inclusive housing alternatives for the future. Q was found to be a suitable method for this type of study. It may find good implementation in other studies concerning this area of research. A further study could build on my findings and use Q to collect perspectives on the adaptation of building and zoning codes in the city.

Appendix

Appendix A: Resources Statement Collection

Appendix B: Items per Key Theme

Appendix C: Pre-questionnaire

Appendix D: Written Instructions

Appendix E: Semi-structured Interview Guide

Appendix F: Interview Protocol

Appendix A: Resources Statement Collection

Video Document

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Appendix B: Items per Key Theme

A. Investment (Capital necessary to participate)

1. Tiny Houses are cheaper than other types of affordable housing
2. Tiny Houses make home ownership affordable
3. The high initial investment for a private Tiny House is recommended for people with low income due to the money they save in the future
4. The economical costs of constructing Tiny Houses puts people with low income at risk to live in uninhabitable dwellings
5. The Tiny Houses we are seeing are not cheap - surely the same money could be put towards a deposit on a small traditional house, not a Tiny House, with a better end result

B. Land use (Efficiency in use of space)

1. The price for land is the major factor in areas of high demand. Therefore, high-rise residential dwellings will be the most efficient use of resources
2. The price for land is rising dramatically, therefore reducing square footage is one solution to keep home ownership affordable in areas of high demand
3. This movement points to growing insecurity and a troubling future in which temporary, unstable, and atomized living arrangements potentially become the norm. What's next? Coffin Homes where you live in a slot in the wall?
4. As spaces in city housing are cut into smaller and smaller swaths, designed to privileged young, independent, salaried workers, the most vulnerable members of the community lose out

C. Time Horizon (Long-term vs. short-term use of Tiny Houses)

1. Rushed construction of affordable housing can be unattractive and unsustainable. Tiny Houses on vacant lots can be a solution to bridge the current lack of affordable housing until the market catches up
2. Tiny Houses can be used for creating additional space, alongside the main house.
3. Tiny Houses are a fad. It is not a solution to our current housing crisis. And just try getting rid of them in a few years.

D. Economize (Resources that can be saved by living in a Tiny House)

1. Small square footage of Tiny Houses moderates energy use and significantly reduces utility costs
2. Reducing utility costs is a way to increase the affordability of a home for people who struggle with having enough money at the end of the month
3. Provide space for people to grow their own food should be considered when creating affordable housing
4. There is no significant correlation between urban gardening and Tiny Houses

- E. Sharing economy (Sharing knowledge and resources in a community)
 - 1. People living in communities of Tiny Houses share infrastructure and tools and therefore reduce expenses for all
 - 2. Sharing infrastructure and tools leads to conflicts in Tiny House communities
 - 3. When living in a Tiny House one is very dependent on other people, for some this might be a unstable living situation and lead to homelessness
 - 4. Tiny House inhabitants are self-sufficient, this creates a stable living condition, as they don't rely on other people
 - 5. The popularity and romantic image of Tiny Houses leads to donations and the engagement of volunteers and therefore creates affordable housing quickly and unbureaucratic

- F. Fulfillment (Contributes to the happiness of inhabitant)
 - 1. Tiny Houses help their inhabitants find financial stability through minimalism as they limit consumerism
 - 2. Life in a Tiny House does not reduce consumerist behavior. While accumulation of stuff might be limited to reduced space, inhabitants demand more of other goods and services than in traditional housing (e.g. eating out more frequently).
 - 3. Downsizing might be a healing strategy for fortunate people, for the poor this credo is ironic
 - 4. Videos detailing the happiness of Tiny House owners are a genre of lifestyle media, they don't display the reality of people with low income

- G. Social Costs (Effect of Tiny Houses on society)
 - 1. Tiny Houses can reduce the costs of public services such as police, emergency rooms, and jails. This is because people experiencing homelessness have access to comfortable, safe, dignified housing instead of homeless shelters or depending on hosts
 - 2. Tiny House communities make poverty visible and can lead to a discrimination of the inhabitants
 - 3. Tiny Houses are an euphemism for garden shacks, not housing in dignity
 - 4. The Tiny House Movement embraces individualistic visions of property while ignoring the real causes of the housing shortage
 - 5. The charm of Tiny Houses is that they can be designed to the individual needs of their inhabitants, this is a new perspective for people with low income who often live in standardized apartments, e.g. the accessibility can be easily adapted to handicaps

- H. NIMBYism (Oppositions to implement Tiny Houses in certain areas)
 - 1. It will be difficult for Tiny House owners to find a lot
 - 2. The unclear legal situation of Tiny Houses brings inhabitants in uncomfortable living situations
 - 3. Tiny Houses can be put anywhere
 - 4. Zoning and building codes should be adapted to the demand for Tiny Houses
 - 5. Tiny Houses increase environmental injustice as people with low income are displaced to areas with noisy streets, industrial areas, and lack of infrastructure

I. People (Target Group)

1. Renters who move frequently or people entering the housing market have a disadvantage due to rent adjustments, Tiny Houses on wheels are a solution for this problem
2. Tiny Houses are attractive to all sorts of people demanding affordable housing
3. Tiny Houses are attractive for students living alone or with a partner
4. Tiny Houses are attractive for people +65 living single or with a partner
5. Tiny Houses are attractive for refugees living alone or with a partner
6. Tiny Houses are attractive for people experiencing homelessness
7. Tiny Houses are attractive for families

J. DIY Empowerment (Increased autonomy through creative search for sustainable solutions)

1. Politicians failed to ensure sufficient affordable housing
2. Tiny Houses empower people with low income to change their own living situation
3. Tiny Houses are a lifestyle trend, they are not suitable for people with low income
4. Tiny Houses can be combined well with other social services low income groups demand
5. Everybody should be allowed to live in a house of their choice, politics should not limit people's freedom in designing their own house

Appendix C: Pre-questionnaire

Name:

Date:

Place:

of Interview:

A) Questionnaire

1. What is your current occupation?

2. How old are you?

3. In which way do you engage with affordable housing in Lüneburg. Please circle one or more of the following:

- a. private demand (current, future, past)
- b. job
- c. investment
- d. academia
- e. demand of a family member (current, future, past)
- f. activism
- g. other _____
- h. none

4. In which way do you engage with the Tiny House Movement. Please circle one or more of the following:

- a. Media, e.g. Newspaper articles, YouTube, Blogs
- b. Public debate
- c. I advocate the idea
- d. I know someone who lives in a Tiny House
- e. Personal experience (current, future, past)
- f. This topic is new to me
- g. other _____

5. Would you like to see Tiny Houses in Lüneburg in the future? Please circle your answer.

- a. Yes
- b. No
- c. Not sure

Which of those statements about Tiny Houses in Lüneburg do you most agree or most disagree with?

1. Please divide the given statements about the effects of Tiny Houses in three simple categories.

Category 1: Statements you feel positive about

Category 2: Statements you feel negative about

Category 3: Statements that make you feel indifferent/unsure/or induce both positive and negative feelings dependent on their context and potential application

2. Please take the Category 1 pile and spread them out relative to one another following the distribution below.

most disagree			neutral					most agree		
-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5

Start on the right hand side. Continue to the items you feel most negative about, which will be awarded the lower rankings at the right-hand end of the distribution.

3. Please take the Category 2 pile and spread them out relative to one another on the left hand side. Continue to the items you feel less negative about, which will be awarded the higher rankings at the left-hand end of the distribution.
4. Please take the Category 3 pile and spread them out relative to one another along the center of the distribution.

Appendix E: Semi-structured Interview Guide

1. How was the sorting activity for you?
2. Do you think Tiny Houses will contribute to affordable housing in Lüneburg?
3. Which statements especially attracted your interest?
4. Which statements were difficult to sort? Why?
5. Were there any statements you didn't understand?
6. Is there an obvious effect of Tiny Houses that was not represented in the Q set?

Appendix F: Interview Protocol

Name:

Date:

Place:

of Interview:

A) Pre-Questionnaire

Notes:

B) Q-Sort

Questions raised by interviewee:

Discussions:

Comments by interviewee:

Atmosphere:

Sorting:

[illegible]

C) Post Interview

Statements addressed and comment:

Statements addressed and comment:		
Stmnt	Reason	Comment

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Eidesstattliche Erklärung/ Statutory Declaration

Ich versichere, dass ich diese Master-Arbeit selbstständig verfasst und keine anderen als die angegebenen Quellen und Hilfsmittel benutzt habe. Ich versichere, alle Stellen der Arbeit, die wortwörtlich oder sinngemäß aus anderen Quellen übernommen wurden, als solche kenntlich gemacht und die Arbeit in gleicher oder ähnlicher Form noch keiner Prüfungsbehörde vorgelegt zu haben

Lüneburg, 09.07.2018

Tara Lucia Freude